

## Computer Science 102 Lab 5

In this lab you will begin the implementation of the `sphere.c` module.

Components that are provided for you include: `main.c`, `ray.h`, `rayfuns.h`, `rayhdrs.h`, and a `makefile`. You must provide your own `vector.h` and will build `sphere.c`.

### The sphere hits function

```
double sphere_hits(  
vec_t   *base,      /* ray base (the viewpoint) */  
vec_t   *dir,      /* ray direction unit vector */  
object_t *obj)     /* the sphere object          */
```

This function must:

Determine if the ray hits the sphere in negative z-space

If so, it must

1. store the location of the hit point in the `object_t` struct and
2. store a unit normal in the `object_t` structure
3. return the distance from the viewpoint to the hit point

If not, it must

1. `return(-1);`

In this lab you will submit a compressed tar file named `sphere.tar.gz` containing all the components needed to build your program.

```
sendlab.102.labsection# lab# sphere.tar.gz
```

Since this is lab3 and if you are in section 1 the command you should use is (remember to `cd ..` because that is where you put your tarfile!)

```
sendlab.102.1 3 sphere.tar.gz
```